



January 19, 2009

L-PI-08-109
10 CFR 50.73

U S Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Prairie Island Nuclear Generating Plant Unit 2
Docket 50-306
License No. DPR-60

LER 2-08-01, Unanalyzed Condition Due to Both Trains of Component Cooling Being Susceptible to a Postulated High Energy Line Break, Supplement 1

Northern States Power Company, a Minnesota corporation (NSPM) herewith encloses Licensee Event Report (LER) 2-08-01. After further review of the 10 CFR 50.73 reporting criteria under which this LER is reportable, NSPM determined this LER should have been reported per 10 CFR 50.73(a)(2)(v) as a safety system functional failure.

Summary of Commitments

This letter contains no new commitments and no changes to existing commitments. This supplement also closes out the commitment made in the original LER to supplement this LER if the causal evaluation uncovered any significant new information on the cause or any significant additional corrective actions.

A handwritten signature in cursive script that reads 'Michael D. Wadley'.

Michael D. Wadley
Site Vice President
Prairie Island Nuclear Generating Plant
Northern States Power Company - Minnesota

Enclosure

cc: Administrator, Region III, USNRC
Project Manager, Prairie Island, USNRC
Resident Inspector, Prairie Island, USNRC
Department of Commerce, State of Minnesota

ENCLOSURE

LICENSEE EVENT REPORT 2-08-01

SUPPLEMENT 1

3 Pages Follow

NRC FORM 366 (9-2007)		U.S. NUCLEAR REGULATORY COMMISSION		APPROVED BY OMB NO. 3150-0104		EXPIRES: 08/31/2010																																									
<h2 style="margin: 0;">LICENSEE EVENT REPORT (LER)</h2> <p style="margin: 5px 0;">(See reverse for required number of digits/characters for each block)</p>																																															
1. FACILITY NAME Prairie Island Nuclear Generating Plant Unit 2				2. DOCKET NUMBER 05000306		3. PAGE 1 of 3																																									
4. TITLE Unanalyzed Condition Due to Both Trains of Component Cooling Susceptible to a Postulated High Energy Line Break																																															
5. EVENT DATE			6. LER NUMBER		7. REPORT DATE		8. OTHER FACILITIES INVOLVED																																								
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9. OPERATING MODE 1		11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply) <table style="width:100%; border: none;"> <tr> <td><input type="checkbox"/> 20.2201(b)</td> <td><input type="checkbox"/> 20.2203(a)(3)(i)</td> <td><input type="checkbox"/> 50.73(a)(2)(i)(C)</td> <td><input type="checkbox"/> 50.73(a)(2)(vii)</td> </tr> <tr> <td><input type="checkbox"/> 20.2201(d)</td> <td><input type="checkbox"/> 20.2203(a)(3)(ii)</td> <td><input type="checkbox"/> 50.73(a)(2)(ii)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(viii)(A)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(1)</td> <td><input type="checkbox"/> 20.2203(a)(4)</td> <td><input checked="" type="checkbox"/> 50.73(a)(2)(ii)(B)</td> <td><input type="checkbox"/> 50.73(a)(2)(viii)(B)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(i)</td> <td><input type="checkbox"/> 50.36(c)(1)(i)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(iii)</td> <td><input type="checkbox"/> 50.73(a)(2)(ix)(A)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(ii)</td> <td><input type="checkbox"/> 50.36(c)(1)(ii)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(iv)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(x)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(iii)</td> <td><input type="checkbox"/> 50.36(c)(2)</td> <td><input type="checkbox"/> 50.73(a)(2)(v)(A)</td> <td><input type="checkbox"/> 73.71(a)(4)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(iv)</td> <td><input type="checkbox"/> 50.46(a)(3)(ii)</td> <td><input type="checkbox"/> 50.73(a)(2)(v)(B)</td> <td><input type="checkbox"/> 73.71(a)(5)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(v)</td> <td><input type="checkbox"/> 50.73(a)(2)(i)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(v)(C)</td> <td><input type="checkbox"/> OTHER</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(vi)</td> <td><input type="checkbox"/> 50.73(a)(2)(i)(B)</td> <td><input checked="" type="checkbox"/> 50.73(a)(2)(v)(D)</td> <td style="font-size: small;">Specify in Abstract below or in NRC Form 366A</td> </tr> </table>										<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input checked="" type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A
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12. LICENSEE CONTACT FOR THIS LER																																															
NAME Jeff Kivi, Principal Regulatory Compliance Engineer								TELEPHONE NUMBER (Include Area Code) 651.388.1121																																							
13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT																																															
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) <p>On July 31, 2008, Prairie Island Nuclear Generating Plant (PINGP) Unit 2 was operating at 100 percent power. At 1345 CDT Prairie Island staff declared both trains of the Unit 2 component cooling water (CC) system inoperable due to the discovery that a postulated Unit 2 high energy line break (HELB) in the Turbine Building could fail a CC line that would affect both trains of the Unit 2 CC system. With both trains of CC declared inoperable, PINGP staff entered Technical Specification (TS) Limiting Condition for Operability (LCO) 3.0.3. PINGP staff isolated the CC line in the Turbine Building at 1612 on July 31, 2008, which returned Unit 2 CC to operable status.</p> <p>The as-found condition was an original design issue uncovered during walkdowns in support of turbine building CC system seismic qualification. The planned corrective action is to modify the cooling source to the cold lab and turbine building sample coolers to reroute or eliminate CC lines from the Turbine Building.</p>																																															

LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTIAL NUMBER	REV NO	
Prairie Island Nuclear Generating Plant Unit 2	05000306	2008	- 001	- 01	2 of 3

EVENT DESCRIPTION

On July 31, 2008, Prairie Island Nuclear Generating Plant (PINGP) Unit 2 was operating at 100 percent power. At 1345 CDT Prairie Island staff declared both trains of the Unit 2 component cooling water¹ (CC) system inoperable due to the discovery that a postulated Unit 2 high energy line break (HELB) in the Turbine Building could fail a CC line that would affect both trains of the Unit 2 CC system. With both trains of CC declared inoperable, PINGP staff entered Technical Specification (TS) Limiting Condition for Operability (LCO) 3.0.3. PINGP staff isolated the CC line in the Turbine Building at 1612 on July 31, 2008, which returned Unit 2 CC to operable status. Unit 2 remained at 100 percent power throughout the event.

EVENT ANALYSIS

The CC system is required to mitigate a HELB, but the CC line that was susceptible to a Unit 2 HELB supplies cooling to Unit 2 sample coolers. While this line can remain isolated at power, there is no automatic isolation of this line (e.g., on a safety injection signal) and any CC inventory loss out of this line would eventually affect both trains of the CC system. This condition was identified in support of turbine building CC system seismic qualification. Turbine building loads can be lined up to either unit CC system, but were aligned to Unit 2 CC at the time of discovery.

This condition was a susceptibility of two trains of Unit 2 CC to a consequential failure from a postulated Unit 2 HELB. A postulated HELB break location was identified that would have been expected to break a nearby CC line to Unit 2 sample coolers. Since a Unit 2 HELB could directly result in the loss of both trains of Unit 2 CC (a system that is required to meet the single failure criterion), in this configuration the Unit 2 CC system did not meet the single failure criterion. Thus, this condition is reportable per 10 CFR 50.73(a)(2)(ii)(B) as an unanalyzed condition. Had a postulated HELB occurred at the specific break location, a consequential CC line break would reasonably be expected to have occurred. Thus, this condition represented a safety system functional failure, so this event is reportable per 10CFR 50.73(a)(2)(v).

SAFETY SIGNIFICANCE

This condition resulted in a potential for a postulated HELB at a specific break location to cause a break in a CC line. There were no actual consequences to the health and safety of the public as a result of this condition. Once a leak in the CC system is isolated or repaired, the system can be refilled and returned to service. Loss of CC due to a pipe rupture is addressed in plant operating procedures, which provide operators immediate and subsequent action steps to mitigate the consequences of a event. However, depending upon the scenario being postulated, it may not be possible to recover the CC system in time to mitigate the postulated event. The NSPM evaluation of risk significance of the as-found condition is ongoing and will be shared with the NRC as part of the significance determination process.

¹ EIS System Code: CC

LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET

1. FACILITY NAME	2. DOCKET NUMBER	6. LER NUMBER YEAR SEQUENTIAL NUMBER	REV NO	3. PAGE
Prairie Island Nuclear Generating Plant Unit 2	05000306	2008 - 001	- 01	3 of 3

CAUSE

The as-found condition was the result of an original design issue that was uncovered during walkdowns in support of turbine building CC system seismic qualification. However, Prairie Island staff could have identified this condition earlier. Northern States Power Company, a Minnesota corporation (NSPM) conducted a causal evaluation associated with the as-found condition. This apparent cause evaluation (ACE) looked at why the corrective action process was not used to evaluate operability when this issue was identified in July of 2006. The cause of this oversight was attributed to a lack of operational focus on the part of Engineering.

A subsequent ACE was initiated to evaluate why a number of other previous opportunities to identify HELB and CC system interaction were missed. A vendor study of January 2008 documented an issue with a postulated HELB of a feedwater line damaging a CC line such that the system would be drained in a matter of minutes. A June 2007 draft of this study contained the same issue. Furthermore, the study referred to a calculation approved in 1995 that had enough information to provide an opportunity to identify this issue. Finally, the calculation referred to a 1987 study that also recognized that there were loads in the turbine building, but failed to identify the potential vulnerability to a HELB in the turbine building. That ACE concluded the cause of the oversight was less than adequate procedure use and adherence on the part of Engineering due to cognitive personnel error.

CORRECTIVE ACTION

The susceptible CC line in the Turbine Building was isolated in the Auxiliary Building.

The planned corrective action is to modify the cooling source to the cold lab and turbine building sample coolers to reroute or eliminate CC lines from the Turbine Building.

PREVIOUS SIMILAR EVENTS

Review of LERs for Unit 1 and Unit 2 since 2006 found no similar events.